VIRUS, Previous Infections

No. 523

THE COUNCIL FOR TOBACCO RESEARCH - U.S.A.

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633 THIRD AVENUE
NEW YORK, N. Y. 10017

COMMITTEE:
Dr. Jacobson, Chm.
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Dr. Lynch

Application For Research Grant

Date: January 11, 1966

1. Name of Investigator: Oswald R. Jones, M.D.

2. Title: Director of Research Project

3. Institution & Address: St. Luke's Hospital - West 113th Street, New York City

4. Project or Subject:
Carbon monoxide uptake and diffusion capacity in children. This test together with others will be used to evaluate pulmonary function in children starting at the earliest age of cooperation. This evaluation of pulmonary function will be applied to normal children, those with asthma, bronchitis, or chronic pneumonia, which conditions were subsequent to infections of all kinds, particularly those caused by known viral agents.

5. Detailed Plan of Procedure (Use additional pages if more space is required)
Measurements of carbon monoxide (CO) uptake and diffusion capacity(1) have been modified to obviate painful arterial puncture by the use of end tidal PCO at rest (2,3,4,5) and during graded hyperventilation(6). Application of these methods in the dog, and in normal humans and patients with chronic chest diseases have established the relationship between CO uptake and diffusion as graded hyperventilation in normal and diseased adults (7,10 supporting 8,9).

Normal children will be grouped according to age and size and normal values for CO uptake and diffusion established as controls. Children with asthma, bronchitis and post viral pneumonitis will be studied and the results compared.

The objectives of the study are: (1) to establish normal values for CO uptake and diffusion capacity at rest and during hyperventilation in children. (2) To study the relationship of asthma, bronchitis and viral pneumonitis on diffusion capacity in children as a background for the development of chronic pulmonary insufficiency.

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6. Budget Plan:

(a) 12,000 full time physiologist	a.	Salaries	20,400.
3,600 part time pediatric cardiologist	b.	Expendable Supplies	2,000.
4,800 technician	c.	Other Expenses	3,600.
(b) 2,000 medical gasses, valves, tubing, bags, etc.	d.	Permanent Equipment	5,700.
(d) 5,700. CO analyzer 2,800 Recorder 2,900 5,700.	e.	Overhead (15% of a, b, c)	3,900.
		Total	35,400

7. Anticipated Duration of Work:

This study is expected to require four years for completion of the above outlined objectives

8. Facilities and Staff Available:

The cardiopulmonary laboratory of St. Luke's Hospital is a recognized research laboratory in pulmonary diseases with four full time physicians, three blood gas technicians and all equipment and facilities to perform the studies outlined. New CO measurement and recording equipment is requested for specific application to small children and infants.

The pediatric department of St. Luke's Hospital is headed by a full time director and operates an active inpatient service of fifty-four beds with 1500 patients per one year, as well as an outpatient department with more than 30,000 visits per one year. A full time pediatric cardiologist will devote part time (1/3) to this project.

9. Additional Requirements:

Antibody titre for viruses. Fluorescent antibody search in tissues obtained by biopsy or at post mortem, also cultures of the above tissues for presence of bacteria and viruses.

10. Additional Information (including relation of work to other projects and other sources of support):

As mentioned CO uptake and diffusion capacity techniques have been developed in this laboratory which have been validated in adults and which are specifically applicable in children as described.

Signature [signature]
Director of Project

[signature]
Business Officer of the Institution
Executive Director

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References

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References:

1. Jones, O.R.: Measles - A Cause of Emphysema, An Hypothesis Concerning Chronic Pulmonary Emphysema, a Possible Cause and its Prevention, Am. Rev. Resp. Dis. Vol. 87, 4, Apr. 1963

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